

CLAIMS

What is claimed is:

1 1. In a system having multiple communication modules coupled to a communication
2 pathway, a method of operating a communication module comprising:

3 powering the communication module;

4 operating the communication module initially in a secondary status;

5 broadcasting a request on the communication pathway for a response from a primary
6 communication module;

7 operating the communication module in a primary status if no response is received from the
8 primary communication module; and

9 broadcasting a message indicating the primary status.

1 2. The method of operating a communication module as defined in claim 1 wherein
2 broadcasting a request on the communication pathway for a response from a primary
3 communication module and operating the communication module in a primary status if no
4 response is received from the primary communication module further comprises:

5 starting a timer after the broadcasting a request step;

6 monitoring the communication pathway for a response from the primary communication
7 module; and

8 self promoting to the primary status if no response to the request is received before the
9 timer reaches a predetermined time.

3. The method of operating a communication module as defined in claim 1 further comprising continuing to operate in the secondary status if a response is received from the primary communication module before the timer reaches a predetermined time.

4. A system comprising:
a first communication module;
a second communication module;
a first communication pathway coupling the first communication module and the second communication module; and
wherein each of the first and second communication modules are adapted to initially assume a secondary status, request a response from a primary communication module, self promote to primary status if no response is received, and if applicable, broadcast the primary status across the first communication pathway.

5. The system as defined in claim 4 wherein the first communication module is a power supply communication module in a rack of servers.

6. The system as defined in claim 5 wherein the second communication module is a power supply communication module in a rack of servers.

7. The system as defined in claim 6 wherein the first communication pathway is an RS-485 communication pathway.

1 8. The system as defined in claim 4 further comprising:
2 a third communication module coupled to the first and second communication modules
3 through the first communication pathway;
4 wherein the third communication module monitors the first communication pathway to
5 ascertain which of the first and second communication modules is primary; and
6 wherein the third communication module directs communications one of the first and
7 second communication modules that has taken the primary status.

9. The system as defined in claim 8 wherein the first communication module is a power
supply communication adapted to monitor a power supply assembly of a power supply system in a
rack of servers.

10. The system as defined in claim 9 wherein the second communication module is a power
supply communication module adapted to monitor a power supply assembly of a power supply
system in a rack of servers.

1 11. The system as defined in claim 10 wherein the first communication pathway is an RS-485
2 communication pathway.

1 12. The system as defined in claim 11 wherein the third communication module is a chassis
2 communication module adapted to communicate on behalf of servers within a particular chassis in
3 a rack of servers.

1 13. In a rack mounted server system having a central power supply, the central power supply
2 having at least two power supply assemblies, each power supply assembly having a
3 communication module coupled to other communication modules and other devices across a
4 communication pathway, a method of determining a primary communication module comprising:
5 assuming initially a secondary status;
6 requesting a response from the primary communication module;
7 promoting to a primary status if no response is received; and if the primary status is taken
8 broadcasting the primary communication module status.

1 14. The method of determining a primary communication module as defined in claim 13
2 wherein requesting a response from the primary communication module and promoting to a
3 primary status if no response is received further comprises:
4 broadcasting a request for a response from the primary communication module;
5 starting a timer; and
6 self promoting to the primary status if no response to the request is received before the
7 timer expires.

1 15. The method of determining a primary communication module as defined in claim 13
2 further comprising remaining in the secondary status if the response is received from the primary
3 communication module before the timer expires.

1 16. A communication module comprising:
2 a random access memory (RAM) device;

3 a read only memory (ROM) device;
4 a processor coupled to the RAM and ROM devices;
5 a first communication pathway coupled to the processors;
6 a second communication pathway coupled to the processor;
7 wherein the processor is adapted to execute programs stored on the ROM device; and
8 wherein the programs stored on the ROM device direct the communication module to
9 default to a secondary status for control of the first communication pathway, and wherein the
10 programs further direct the processor to request a response from a primary communication module
11 across the first communication pathway, self-promote to a primary status if no response is
12 received, and broadcast the primary status across the first communication pathway.

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17. The communication module as defined in claim 16 wherein the processor further comprises
18 a microcontroller.

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- 1 21. The communication module as defined in claim 16 wherein the ROM devices is an
2 electrically erasable programmable read only memory (EEPROM).
- 1 22. The communication module as defined in claim 16 wherein the programs stored on the
2 ROM device executed by the processor further direct the communication module to remain in the
3 secondary status if a response is received from the primary communication module.
- 1 23. The communication module as defined in claim 16 wherein the second communication
2 pathway comprises an I²C serial communication pathway.
- 1 24. In a system having multiple communication modules coupled to a communication
2 pathway, a method of operating a plurality of communication modules comprising:
3 powering the communication modules;
4 operating the communication modules initially each in a secondary status;
5 broadcasting a request on the communication pathway by each of the communication
6 modules for a response from a primary communication module; if no response is received from a
7 primary communication module; and
8 arbitrating among the communication modules by:
9 starting a timer in each communication module upon their respective broadcasts of
10 the request;
11 self promoting to a primary status by a first of the communication modules to have
12 its time expire; and
13 broadcasting by the first of the communication modules its primary status;

14 operating all but the first of the communication modules in a secondary status.

1 25. The method of operating a plurality of communication modules as defined in claim 24
2 further comprising choosing a primary communication module among communication modules
3 whose timers expire substantially simultaneously based on device addresses for each of the
4 communications modules whose timers expire substantially simultaneously.

26. The method of operating a plurality of communication modules as defined in claim 25 wherein choosing a primary based on device addresses further comprises choosing one of the communication modules whose timers expired simultaneously having the highest device address.